

Appln. No. 10/709,355  
Docket No. 144482/GEM-0117

RECEIVED  
CENTRAL FAX CENTER

JUL 02 2007

### REMARKS / ARGUMENTS

#### Status of the Claims

Claims 1-7 and 9-19 are pending in the application. Claims 1-7 and 9-19 stand rejected. Applicant has amended claims 1, 4, 7, 9, 10, 12, 15, 17, 18, and 19, and cancelled claims 8, and 20-21, leaving claims 1-7 and 9-19 for consideration upon entry of the present Amendment.

Applicant respectfully submits that the claim objections, the specification objections, and the rejections under 35 U.S.C. §112, 35 U.S.C. §101, and 35 U.S.C. §103(a), have been traversed, that no new matter has been entered through this amendment, and that the application is in condition for allowance.

#### No New Subject Matter

For the Examiner's reference, support for the attached amendments may be found in at least, for example, the subject specification in paragraph [0023] and FIGS. 3-4.

#### Drawings and Information Disclosure

Applicant thanks the Examiner for indicating that the originally filed drawings have been accepted, and further thanks the Examiner for his/her time and effort in considering the references submitted in an Information Disclosure Statement filed May 24, 2004. It is noted that Applicant has received the initialed PTO-1449 form.

#### Claim Objections

Claims 4, 10 and 15 are objected to for reasons relating to informalities.

Applicant has amended Claims 4, 10 and 15 taking into consideration the Examiner's comments. Therefore, Applicant believes these objections have been fully tended to in this response.

Accordingly, Applicant respectfully requests the Examiner to reconsider and withdraw these objections.

Appln. No. 10/709,355  
Docket No. 144482/GEM-0117

RECEIVED  
CENTRAL FAX CENTER

JUL 02 2007

**Objections to the Specification**

As noted hereinbefore, a substitute specification including the corrections required by the Examiner has been attached hereto. The substitute specification fully complies with 37 C.F.R. §§ 1.125(b) and (c).

Accordingly, Applicant respectfully requests the Examiner withdraw this objection.

**Claim Rejections - 35 U.S.C. §112, Second Paragraph**

Claims 4 and 7 stand rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter that Applicant regards as the invention. Applicant respectfully traverses this rejection.

Applicant submits that claims 4 and 7 have been amended taking into consideration the Examiner's comments. Particularly, Applicant has amended claims 4 and 7 to ensure antecedent basis throughout the claims. Therefore, Applicant submits that claims 4 and 7 are sufficiently definite as required under 35 U.S.C. §112.

Accordingly, Applicant respectfully requests the Examiner to reconsider and withdraw this rejection.

**Claim Rejections - 35 U.S.C. §101**

Claims 20 and 21 stand rejected under 35 U.S.C. §101 as allegedly being directed to non-statutory subject matter. Applicant respectfully submits that claims 20 and 21 have been cancelled in this response, thereby rendering this rejection moot.

Withdrawal of this rejection is respectfully requested.

**Claim Rejections - 35 U.S.C. §103(a) (Li and Lindeberg)**

Claims 1-7, 11-12, and 14-21 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,937,776 to Li et al. (hereinafter Li) in view of "Discrete Derivative Approximations with Scale-Space Properties: A Basis for Low-

Appln. No. 10/709,355  
Docket No. 144482/GEM-0117

Level Feature Extraction,” by Lindeberg (hereinafter Lindeberg). Applicant respectfully traverses this rejection.

Applicant respectfully submits that the obviousness rejection based on Li and Lindeberg is improper as the combination of References fail to teach or suggest each and every element of the instant invention in such a manner as to perform as the claimed invention performs. For an obviousness rejection to be proper, the Examiner must meet the burden of establishing a prima facie case of obviousness. *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988). The Examiner must meet the burden of establishing that all elements of the invention are taught or suggested in the prior art. MPEP §2143.03.

It is submitted that Li and Lindeberg, taken alone or in combination, fail to disclose or suggest *inter alia* “isolating a selected region of interest from the multi-dimensional dataset ... generating a plurality of differential operators for the selected region of interest using a discrete approximation of an analytic function” as recited in independent claim 1 (emphasis added).

Li is directed to computer-aided detection of nodules with three-dimensional shape enhancement filtering of image data (see Li, Abstract). As set forth in the Abstract of Li (emphasis added below):

... filtered image data can be subjected to processing to derive a measure indicative of the presence of the object in the image, including determining a region of interest in the image, extracting at least one feature from the first filtered image data from within the region of interest, and applying the at least one extracted feature to a classifier configured to output the measure indicative of the presence of the object in the image. The image data can also be subjected to filtering with second and/or third geometric filters which enhance different geometric patterns, and which produce respective filtered data which are also processed to derive the measure indicative of the presence of the object.

Therefore, Li clearly discloses classification of a feature in a region of interest, but remains silent regarding filtering only the region of interest. In fact, Li goes so far as to explicitly state that “[w]hether or not a region of interest and/or nodule candidates are identified from the nodule enhanced (dot-filtered) images, the original image is also

Appln. No. 10/709,355  
Docket No. 144482/GEM-0117

filtered with at least one of the 3-D line and plane enhancement filters" (see Li, col. 12, ll. 56-67, emphasis added).

As such, Li merely discloses classifying nodule candidates in a region of interest and filtering an entire set of image data. Therefore, Li cannot disclose or suggest "isolating a selected region of interest from the multi-dimensional dataset ... generating a plurality of differential operators for the selected region of interest using a discrete approximation of an analytic function" as recited in independent claim 1 (emphasis added).

Furthermore, it is respectfully submitted that the Examiner merely relies on Lindeberg for disclosure of discrete approximations (see Office Action, page 6), and that Lindeberg does not disclose at least the features outlined above with reference to claim 1.

Therefore, because Li and Lindeberg fail to disclose or suggest each and every feature of claim 1, claim 1 is patentable over Li and Lindeberg in any combination.

It is further submitted that each of independent claims 15, 16, 17, 18, and 19 contain somewhat similar features to those argued above with reference to claim 1. Therefore, claims 15, 16, 17, 18, and 19 are likewise patentable over Li and Lindeberg for at least these reasons (it is noted that claims 15, 16, 17, 18, and 19 should be interpreted solely by those limitations set forth therein).

Claims 2-7, 11-12, and 14-21 are patentable at least by virtue of their dependency upon independent claim 1, in addition to the features set forth therein.

In view of the foregoing, Applicant submits that Li and Lindeberg fail to teach or suggest each and every element of the claimed invention and are therefore wholly inadequate in their teaching of the claimed invention as a whole, and therefore cannot properly be used to establish a prima facie case of obviousness.

Accordingly, Applicant respectfully requests reconsideration and withdrawal of this rejection.

Appln. No. 10/709,355  
Docket No. 144482/GEM-0117

**Claim Rejections - 35 U.S.C. §103(a) (Li, Lindeberg, and Hu)**

Claims 9, 10, and 13 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Li and Lindeberg, in further view of "Automatic Lung Segmentation for Accurate Quantitation of Volumetric X-Ray CT Images," by Hu et al. (hereinafter Hu). Applicant respectfully traverses this rejection.

As argued above, Li and Lindeberg fail to disclose or suggest the features of independent claim 1. Furthermore, Applicant submits that even if Li, Lindeberg, and Hu were combinable (which Applicant does not admit), the resulting combination would still not disclose or suggest the features of claim 1, as Hu fails to cure the deficiencies of Li and Lindeberg discussed above. Therefore, Applicant submits that claim 1 is patentable over Li, Lindeberg, and Hu, and that claims 9, 10, and 13 are patentable at least by virtue of their dependency upon independent claim 1.

Applicant respectfully requests the Examiner withdraw this rejection.

JUL 02 2007

Appln. No. 10/709,355  
Docket No. 144482/GEM-0117

**CONCLUSION**

In light of the forgoing, Applicant respectfully submits that the pending rejections have been traversed, and respectfully requests that the Examiner reconsider and withdraw these rejections.

If a communication with Applicant's Attorneys would assist in advancing this case to allowance, the Examiner is cordially invited to contact the undersigned so that any such issues may be promptly resolved.

The Commissioner is hereby authorized to charge any additional fees that may be required for this amendment, or credit any overpayment, to Deposit Account No. 07-0845.

In the event that an extension of time is required, or may be required in addition to that requested in a petition for extension of time, the Commissioner is requested to grant a petition for that extension of time that is required to make this response timely and is hereby authorized to charge any fee for such an extension of time or credit any overpayment for an extension of time to the above-identified Deposit Account.

Respectfully submitted,

CANTOR COLBURN LLP

Applicant's Attorneys

By: 

John Sweet  
Registration No. 59,770  
Customer No. 28413

Address: 55 Griffin Road South, Bloomfield, Connecticut 06002  
Telephone: (860) 286-2929  
Fax: (860) 286-0115